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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,214	04/19/2004	Brian T. Holland	7774	2941
49459	7590	11/16/2007		
NALCO COMPANY 1601 W. DIEHL ROAD NAPERVILLE, IL 60563-1198			EXAMINER METZMAIER, DANIEL S	
			ART UNIT 1796	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/827,214	Applicant(s) HOLLAND ET AL.	
	Examiner Daniel S. Metzmaier	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,8,10-29,32 and 33 is/are pending in the application.
- 4a) Of the above claim(s) 12-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,8,10,11,32 and 33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-2, 8, 10-29 and 32-33 are pending.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04 September 2007 has been entered.

Election/Restrictions

2. Applicant's election of Group I, claims 1-11 and 30-31, now claims 1-2, 8, 10-11 and 32-33, in the reply filed on 22 January 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3. Claims 12-29 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 22 January 2007.

Claim interpretation

4. The claims are drafted in product-by-process format. Attention is directed to MPEP 2113 for claim analysis of product-by-process claim limitations. Copolymerized as now claimed has basis at page 9, lines 15 et seq, discloses the term copolymerized

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and is characterized as a heel solution of silicic acid with a metallic cation. Said materials are further characterized as having a "metal-silicate lattice microstructure". Applicants (page 2, lines 29-30) characterize the colloidal particles as amorphous and spherical in shape, which may be further processed to produce crystalline structure.

Two structures appear to be set forth as the "metal-silicate lattice microstructure" and the macrostructure as amorphous or crystalline, wherein the microstructure results from the presence of the metal cation formation with the silicic acid to form the colloidal particles. Applicants are requested to clarify this interpretation to the extent that the claims preclude materials that are amorphous and have a "metal-silicate lattice microstructure".

Claim only define a upper limit for the metal species in the compositions (i.e., claim 11).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-2, 8, 10-11 and 32-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear whether applicants intend the lattice structure to define the microscopic arrangement between silica and metal cations in both amorphous and crystalline materials or that said materials are exclusive to crystalline materials. The alternative group employing "and" and "and/or" render the claim indefinite.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe et al, US 5,597,512. Watanabe et al (examples and claims, particularly claims 4 and 5) disclose making silica sols having 972 ppm and 1156 ppm of CaO. Watanabe et al (examples and claims) disclose the use of sodium hydroxide as a stabilizer as well as quaternary ammonium compounds (claims 4 and 5) as stabilizers. Watanabe et al (claims) disclose the use of MgO or CaO in the form of metal salts with silicic acid. Watanabe et al (column 1, lines 5-15) disclose the use of the sols as surface coating agents. The claimed lattice structure would be inherent to the Watanabe et al materials as the microstructure of the particles based on the divalent and tetravalent arrangement of the alkaline earth metal cations with the siloxy structure formed from the silicic acids.

9. Claims 1-2, 8, 10 and 32-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Finlayson et al, US 4,287,086. Finlayson et al disclose organic systems employing organophilic clay suspended in said organic systems. The organophilic clay is made organophilic by the addition of a quaternary amine. Said clay is inherently a

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layered material that is in colloidal form. Bentonite and hectorite are both montmorillonite clays. Hectorite is known to be a sodium/magnesium/lithium silicate. Bentonite is known as an aluminosilicates and would have had residual amounts of sodium/magnesium/calcium. The materials would have been expected to be inherently spherical since the said materials have not been otherwise stated.

10. Claims 1-2, 8, 10-11 and 32-33 are rejected under 35 U.S.C. 102(b) as being anticipated by S. Mintova et al, "Effect of the silica source on the formation of nanosized silicalite-1: an in situ dynamic light scattering study", *Microporous and Mesoporous Materials*, 55 (2002), pages 171-179. S. Mintova et al (2. Experimental) discloses the synthesis of nanosized silicalite-1 comprising tetrapropylammonium hydroxide (TPAOH) : 0.13 moles Na_2O : 25 SiO_2 in water and ethanol. The hydrothermal treatment results in the crystallized layered structure and the alkali metal, i.e., sodium is present in less than 2 wt% of silica. The materials would have been expected to be inherently spherical since the said materials have not been otherwise stated.

11. Claims 1-2, 8, 10-11 and 32-33 are rejected under 35 U.S.C. 102(a) as being anticipated by Cundy et al, "Some observations on the preparations and properties of colloidal silicalites. Part I: Synthesis of colloidal silicalite-1 and titanasilicalite-1 (TS-1)", *Microporous and Mesoporous Materials*, 66 (2003), pages 143-156. Cundy et al (page 146, 2.2 Preparation of TS-1sols) discloses the preparation of titanasilicalite-1 sols with TPAOH having 6 mole % of titanium metal and discloses as little as 1 mole % titanium metal. The 1 mole % equates to less than 2 wt % of metal based on silica. The

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materials would have been expected to be inherently spherical since the said materials have not been otherwise stated.

Response to Arguments

12. Applicant's arguments filed 04 September 2007 have been fully considered but they are not persuasive.

13. Applicants (page 7) assert the declaration by Dr. Holland and the disclosure of the specification set forth the lattice structure. Applicants declaration is an opinion declaration without evidentiary evidence and appears to be inconsistent with claim 10, which sets forth copolymerization of alkali metal and/or alkaline earth metal into the lattice.

14. Applicants amendments have not been deemed to clarify the claim regarding the amorphous and crystalline characterization.

15. Applicants (pages 9 and 10) assert the alkaline earth metals are in solution as ions and are negligible in the Watanabe et al reference. This has not been deemed persuasive since claim 2 sets forth as little as 10 parts per million of the metal. The remaining claims are open to any concentration. These read on what applicants characterize as negligible.

16. Applicants (pages 10 and 11) assert Finlayson et al employs a quaternary amine, which is not a metal copolymerized with the silicate. Clay is a naturally occurring layered silicate with metals copolymerized within the lattice. Applicants' claims are directed to compositions defined by product-by-process limitations. Applicants have not shown said clays to be distinct from the claims.

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17. Applicants (page 11) assert Mintova fails to disclose a metal silicate lattice or a metal copolymerized and incorporated into a lattice. The sodium employed in the Mintova process does not appear to be removed and thus would be expected in the crystalline lattice of the silicalite materials. Applicants' claims do not require specified amounts of the metal with the exception of claims 2 (as little as 10 ppm up to 35 % bw) and claim 11 (less than 2 % bw). Sodium reads on the copolymerized metal (see claim 10).

18. Furthermore, Mintova discloses the materials for use in making zeolite. An aluminum silicate of crystalline lattice structure. To the extent the crystalline materials are alternative to the amorphous and generally spherical limitations, said claimed materials read on the implicit use of the Mintova materials in zeolite formation.

19. Applicants (page 12) assert Cundy fails to disclose a metal silicate lattice or a metal copolymerized and incorporated into a lattice wherein the metal is covalently bound to the lattice. Applicants' claims do not require covalently bound metals. Applicants' claims do not require specified amounts of the metal with the exception of claims 2 (as little as 10 ppm up to 35 % bw) and claim 11 (less than 2 % bw). Sodium reads on the copolymerized metal (see claim 10).

20. Applicants' claims are drafted in product-by process format. A *prima facie* case having been presented, the burden shifts to applicants to show the claimed materials are patentably distinct and non-obvious.


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Daniel S. Metzmaier
Primary Examiner
Art Unit 1796

DSM